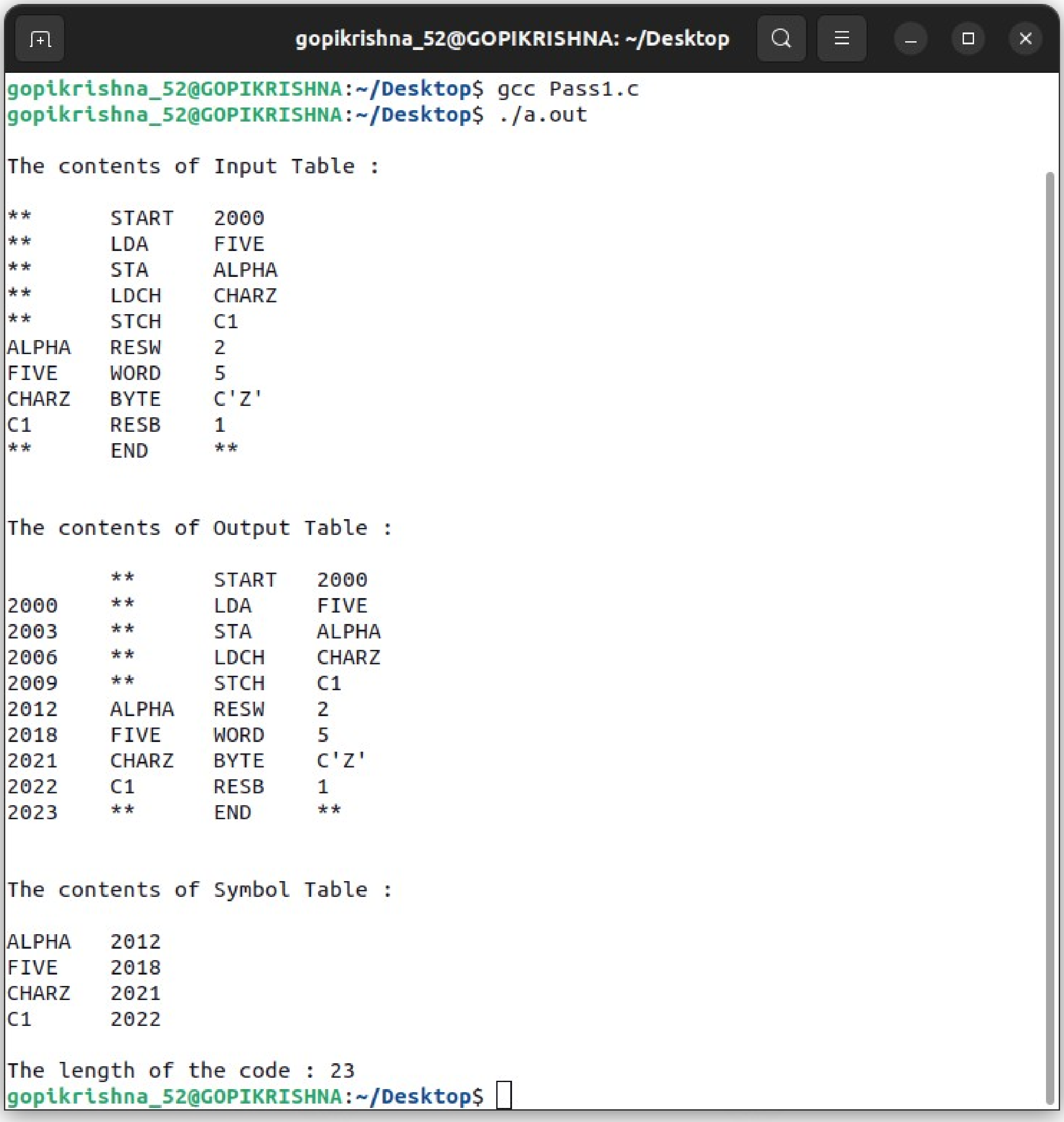
PROGRAM CODE

```
#include <stdio.h>
#include <string.h>
#include <stdlib.h>

void passOne(char label[10], char opcode[10], char operand[10], char code[10], char
mnemonic[3]);
void display();

int main()
{

   char label[10], opcode[10], operand[10];

   char code[10], mnemonic[3];

   passOne(label, opcode, operand, code, mnemonic);

   return 0;
}

void passOne(char label[10], char opcode[10], char operand[10], char code[10], char mnemonic[3])

{
   int locctr, start, length;

   FILE *fp1, *fp2, *fp3, *fp4, *fp5;


   fp1 = fopen("input.txt", "r");
   fp2 = fopen("optab.txt", "r");
   fp3 = fopen("symtab.txt", "w");
   fp4 = fopen("intermediate.txt", "w");
   fp5 = fopen("length.txt", "w");

   fscanf(fp1, "%s\t%s\t%s", label, opcode, operand);

   if (strcmp(opcode, "START") == 0) {

      start = atoi(operand);
      locctr = start;
      fprintf(fp4, "\t%s\t%s\t%s\n", label, opcode, operand);
      fscanf(fp1, "%s\t%s\t%s", label, opcode, operand);
   }
   else {
      locctr = 0;
   }
 // iterate till end
   while (strcmp(opcode, "END") != 0) {
        fprintf(fp4, "%d\t%s\t%s\t%s\n", locctr, label, opcode, operand);


        if (strcmp(label, "**") != 0) {
            fprintf(fp3, "%s\t%d\n", label, locctr);
        }


        fscanf(fp2, "%s\t%s", code, mnemonic);

        // 4. traverse till the end of optab file
        while (strcmp(code, "END") != 0) {
            if (strcmp(opcode, code) == 0) {
                locctr += 3;
                break;
            }

            fscanf(fp2, "%s\t%s", code, mnemonic);
        }


        if (strcmp(opcode, "WORD") == 0) {
            locctr += 3;
        }

        else if (strcmp(opcode, "RESW") == 0) {
            locctr += (3 * (atoi(operand)));
        }

        else if (strcmp(opcode, "BYTE") == 0) {
            ++locctr;
        }

        else if (strcmp(opcode, "RESB") == 0) {
            locctr += atoi(operand);
        }

        fscanf(fp1, "%s\t%s\t%s", label, opcode, operand);
    }

    fprintf(fp4, "%d\t%s\t%s\t%s\n", locctr, label, opcode, operand);


    fclose(fp4);
    fclose(fp3);
    fclose(fp2);
    fclose(fp1);


    display();
    length = locctr - start;
    fprintf(fp5, "%d", length);
    fclose(fp5);
    printf("\nThe length of the code : %d\n", length);
}

void display() {

    char str;
    FILE *fp1, *fp2, *fp3;


    printf("\nThe contents of Input Table :\n\n");
    fp1 = fopen("input.txt", "r");
    str = fgetc(fp1);
    while (str != EOF) {
        printf("%c", str);
        str = fgetc(fp1);
    }
    fclose(fp1);


    printf("\n\nThe contents of Output Table :\n\n");
    fp2 = fopen("intermediate.txt", "r");
    str = fgetc(fp2);
    while (str != EOF) {
        printf("%c", str);
        str = fgetc(fp2);
    }
    fclose(fp2);


    printf("\n\nThe contents of Symbol Table :\n\n");
    fp3 = fopen("symtab.txt", "r");
    str = fgetc(fp3);
    while (str != EOF) {
        printf("%c", str);
        str = fgetc(fp3);
    }
    fclose(fp3);
}
```

OUTPUT



```
gopikrishna_52@GOPIKRISHNA:~/Desktop$ gcc Pass1.c
gopikrishna_52@GOPIKRISHNA:~/Desktop$ ./a.out

The contents of Input Table :

**      START   2000
**      LDA     FIVE
**      STA     ALPHA
**      LDCH    CHARZ
**      STCH    C1
ALPHA   RESW    2
FIVE    WORD    5
CHARZ   BYTE    C'Z'
C1      RESB    1
**      END     **


The contents of Output Table :

        **      START   2000
2000    **      LDA     FIVE
2003    **      STA     ALPHA
2006    **      LDCH    CHARZ
2009    **      STCH    C1
2012    ALPHA   RESW    2
2018    FIVE    WORD    5
2021    CHARZ   BYTE    C'Z'
2022    C1      RESB    1
2023    **      END     **


The contents of Symbol Table :

ALPHA   2012
FIVE    2018
CHARZ   2021
C1      2022

The length of the code : 23
gopikrishna_52@GOPIKRISHNA:~/Desktop$ 
```